Claims

[c1] 1. A method of detecting bacterial endospores comprising:
providing a sample;
providing a marker chemical complexing agent;
providing a laser;
determining if a marker chemical is present in said sample;
if said marker chemical is present, complexing said marker chemical with said marker chemical complexing agent
exposing said sample to said laser; and
detecting the presence of bacterial endospores in said sample.

[c2] 2. The method according to claim 1, wherein said marker chemical is dipicolinic acid.

[c3] 3. The method according to claim 1, wherein said marker chemical complexing agent is a terbium containing compound.

[c4] 4. The method according to claim 1, wherein said marker chemical complexing agent is heated above 30 ^{o} C.

[c5] 5. The method according to claim 1, further comprising providing a release agent.

[c6] 6. The method according to claim 5, wherein said release agent releases substantially all of said marker material from said bacterial endospores.

[c7] 7. The method according to claim 5, wherein said release agent is dodecylamine.

[c8] 8. The method according to claim 5, wherein said release agent is heated above 30 ^{o} C.

[c9] 9. The method according to claim 1, wherein said method further comprises detecting less than 100,000 CFU/mL of endospores.

[c10] 10. The method according to claim 1, wherein said method further comprises detecting less than 10,000 CFU/mL of endospores.

[c11] 11. The method according to claim 1, wherein said method further comprises detecting less than 5,000 CFU/mL of endospores.

[c12] 12. The method according to claim 1, wherein said method further comprises detecting less than 1,000 CFU/mL of endospores.

[c13] 13. The method according to claim 1, wherein said method further comprises detecting less than 500 CFU/mL of endospores.

[c14] 14. The method according to claim 1, wherein said method further comprises detecting less than 100 CFU/mL of endospores.

[c15] 15. The method according to claim 1, wherein said method further comprises detecting less than 20 CFU/mL of endospores.

[c16] 16. The method according to claim 1, wherein said detection of the presence of bacterial endospores occurs in less than 10 minutes.

[c17] 17. The method according to claim 1, wherein said detection of the presence of bacterial endospores occurs in less than 5 minutes.

[c18] 18. The method according to claim 1, wherein said detection of the presence of bacterial endospores occurs in less than 3 minutes.

[c19] 19. The method according to claim 1, wherein said method further includes providing a marker chemical enhancement agent and combining said agent with said sample.

[c20] 20. The method according to claim 1, wherein said marker chemical enhancement agent is an $AlCl_3$ containing compound.

[c21] 21. The method according to claim 1, wherein said marker chemical enhancement agent is heated above 30^{o} C.

[c22] 22. The method according to claim 1, wherein said laser emits light at a wavelength between 260 and 280 nanometers.

[c23] 23. The method according to claim 1, further comprising:
agitating said sample.

[c24] 24. The method according to claim 23, where said agitation includes: sonic, mechanical and heating.

[c25] 25. A bacterial endospore detection system comprising:
an optical detection device;
wherein said optical detection device further comprises an optical flow cell;
flowpath;
sampler; and
marker chemical complexing agent reservoir.

[c26] 26. The system according to claim 25, wherein said optical detection device includes a sample flow device.

[c27] 27. The system according to claim 25, wherein said optical detection device includes an optical analysis device.

[c28] 28. The system according to claim 25, further comprises a marker chemical enhancement agent reservoir.

[c29] 29. The system according to claim 25, further comprises a release agent reservoir.

[c30] 30. The system according to claim 25, wherein said flowpath includes at least one mixing zone.

[c31] 31. The system according to claim 30, wherein at least one mixing zone is heated.